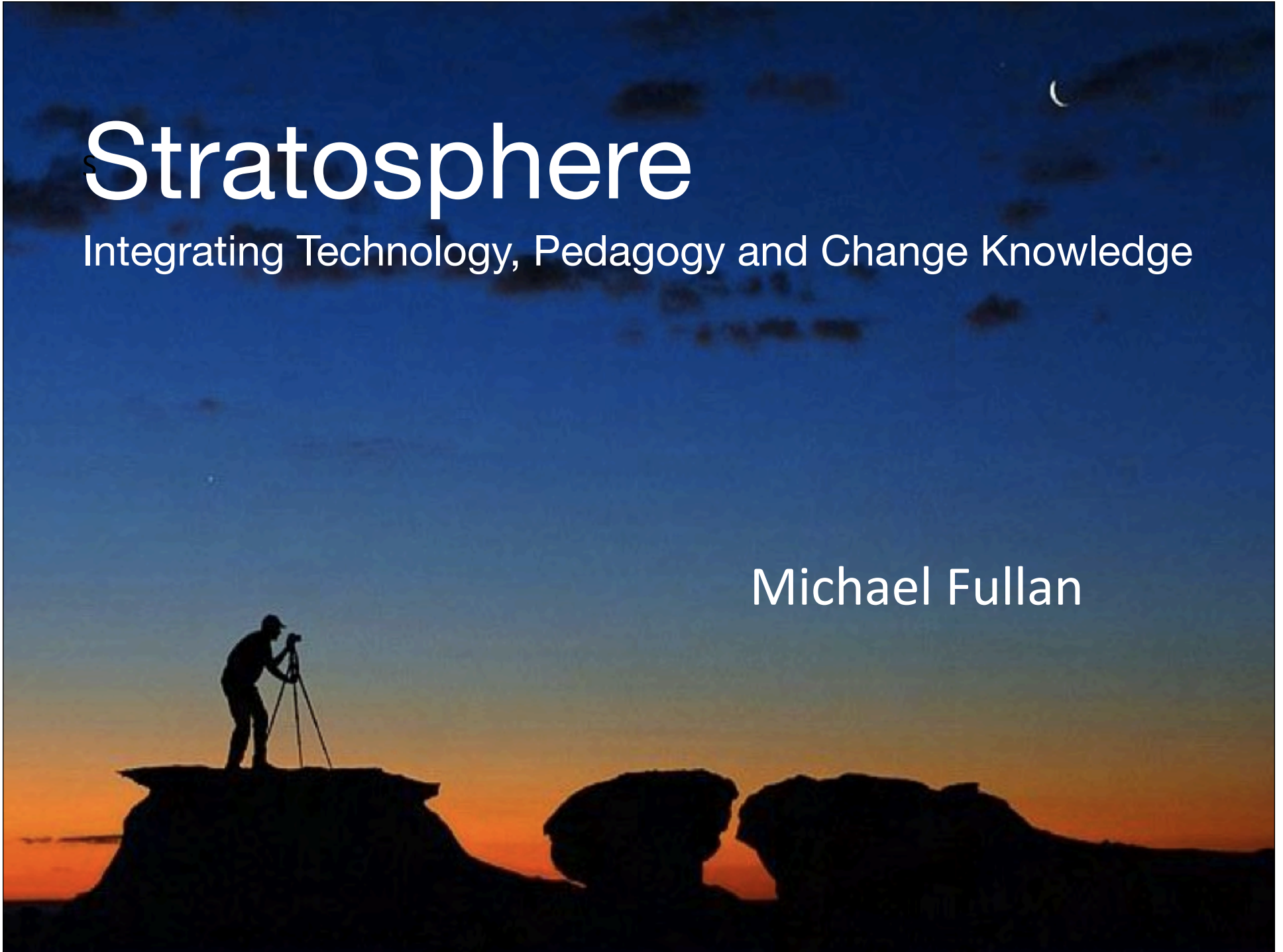


Stratosphere

Integrating Technology, Pedagogy and Change Knowledge

Michael Fullan



Outline

- Problem
- Solution
- Timeliness
- Innovation Cycle



1

Wrong vs Right Drivers: A Matter of Right Brain

Accountability	Capacity building
Individual teacher and leadership quality	Collaborative work
Technology	Pedagogy
Fragment strategies	Systemness'

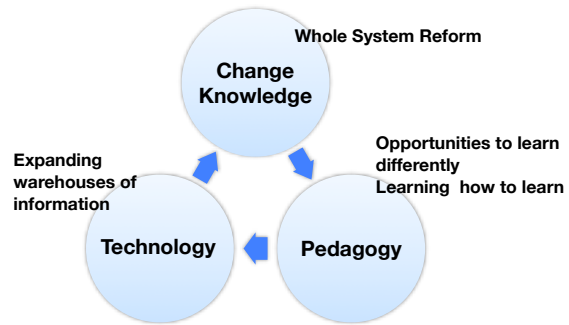
2

Whole System Reform

- Relentless focused leadership at the center
- A small number of ambitious goals
- A positive stance with respect to the sector
- A core strategy of capacity building
- Use of evidence, data
- A non-punitive approach to accountability
- Transparency of data
- Learning from implementation with lateral and vertical dissemination

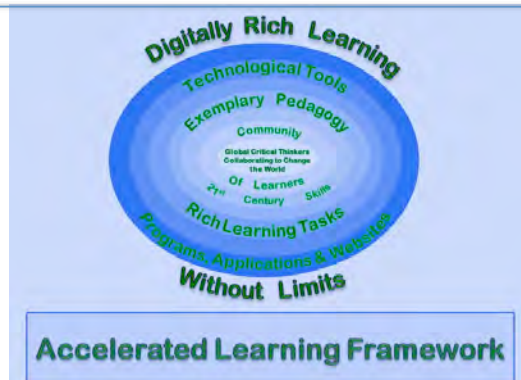
3

Stratosphere Defined



4

Technology and Pedagogy in Action: Park Manor Senior Public School



5

Park Manor Results: 2007-11

- Writing 44%- 78% (boys 32-74)

6

Technology in Schools

Technology has dramatically affected virtually every sector in society that you can think of **except** education. Pg. 72

7

The Challenge for Education

- It is time that gadget goes to school and schools go to gadget 24/7.
- It is teachers with technology who will make the difference.
- Students are partners.



8

Why the urgency?

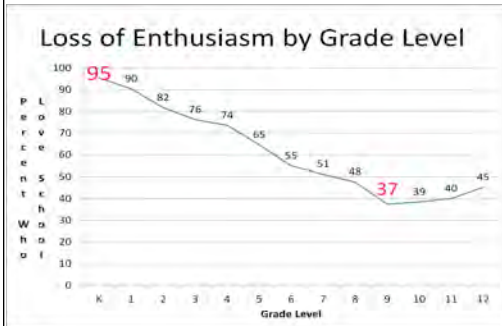


People don't realize how bad the situation is in US public education. Being 23rd or worse in the world is **more than a statistic**.

The average performance of systems is not the most important factor; rather the **gap between low and high performers** is.

9

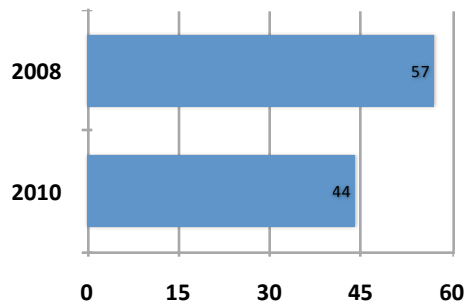
It is getting worse...



10

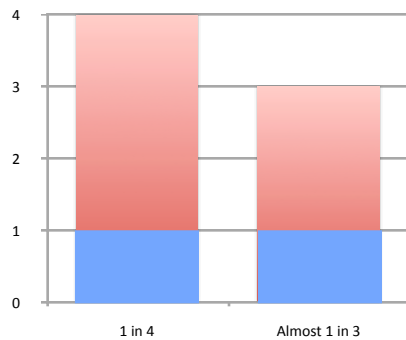
Teacher Met Life Survey: 2008-2010

Decline in Teacher Satisfaction



11

Teachers Considering Leaving the Profession



12

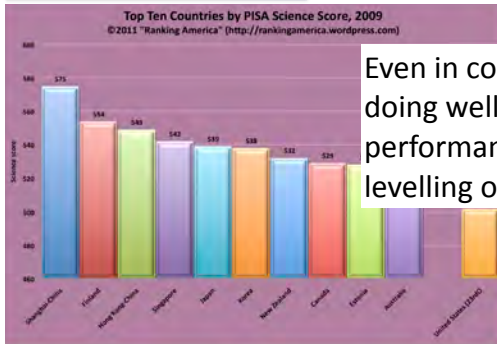
Professional Capital/ Hargreaves&Fullan, 2012

- Human Capital
- Social Capital
- Decisional Capital

13

13

Limits of Present



Even in countries
doing well
performance is
levelling off.

Data from OECD/PISA
<http://www.pisa.oecd.org/dataoecd/54/12/46643496.pdf>

14

Stratosphere is about:

- Making explicit connections between technology, pedagogy and change knowledge.
- Increasing clarity and vivid examples
- Mystery, intrigue and the unknown

15

Stratosphere

Integrating technology, pedagogy and change knowledge is fundamentally liberating.



16

Stratosphere



Best of all students learn collaboratively, consolidating connections with others locally and afar.

Citizenship, human solidarity, collective problem-solving and sustainability are thereby served.

17

New Learning

Exciting innovating learning experiences for *all* students needs to be:

- Irresistibly engaging for both students and teachers
- Elegantly efficient and easy to use
- Technologically ubiquitous 24/7
- Steeped in real-life problem solving



18

Emerging but ad hoc examples

- Good news: The power of integrating technology and pedagogy: Real-life examples
- Bad news: No examples or no plan for Whole System Reform

19

19

Criteria in Action: Project Learning

Insert video Edutopia

An overview to project based learning

Prompt

A glimpse of engaged learning

What do you observe about the 4 criteria in action?

20

Criteria in Action: Turn & Talk

Share an observation of the criteria in action:

- ✓ Irresistibly engaging
- ✓ Elegantly efficient and easy to use
- ✓ Technologically ubiquitous 24/7
- ✓ Steeped in real life problem solving

21

Whole System Focus

We have **ad hoc innovative teachers** but **not many innovative schools**, and **no innovative systems**.



22

Pedagogy, Technology and Change

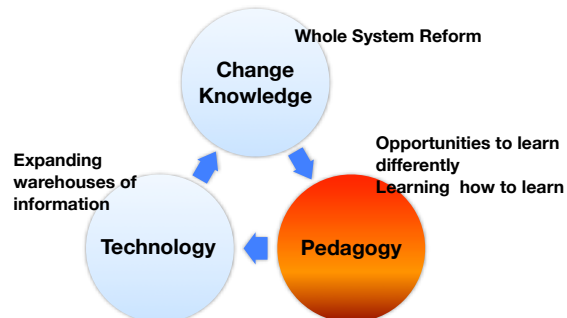
Almost all **great breakthroughs** come from working on a **small number of ambitious goals**, and creating something different and elegant in simplicity.

The potential **integration of technology, pedagogy, and change knowledge** can be designed to create learning experiences that produce high natural yields in what is learned.
(pg. 17)



23

Stratosphere Defined



24

Pedagogy and Change



- Roles of the teacher
- Student Engagement
- Pedagogical Precision

25

Digital Savvy is not Pedagogy

- Making digital devices available and becoming sophisticated in their use is not necessarily learning
- The scariest part of the new technologies is that it gives people (and those that observe them) a false sense that they are learning something just by using an elegant machine

26

26

The New Pedagogy

Teachers are needed but it is a new role that is required—the teacher as change agent.



27

Effect Size on Student Learning

- Teacher as Activator .84
(feedback, accessing thinking, challenging goals, monitoring learning)
- Teacher as Facilitator .17
(problem based learning, simulations and gaming, individualized instruction)
(Hattie, 2011)

28

28

The New Pedagogy:



- Recognizing
- Encouraging
- Facilitating
- Stretching

Sir Ken Robinson pg 25

29

Expert Teachers

- Possess high levels of knowledge and understanding of the subjects they teach.
- Can guide learning to surface and deep outcomes.
- Can successfully monitor learning and provide feedback that assists students in progress.
- Can attend to more attitudinal attributes of learning.
- Can provide defensible evidence of positive impacts of the teaching on learning.

John Hattie pg. 48

30

Engagement: Connecting with your Students

“It seems that in many cases as little as 20-30 minutes of supportive adult attention can move a student from the wrong path to the right one.”



Ben Levin (pg. 20)

31

Pedgogical Precision

- Doing less telling while allowing students to research the answers to guiding questions on their own.
- Always connecting what is taught with real-world outcomes.
- Helping distinguish between the unchanging *verbs* (skills) of education to the rapidly changing *nouns* (tools)

Marc Prensky

32

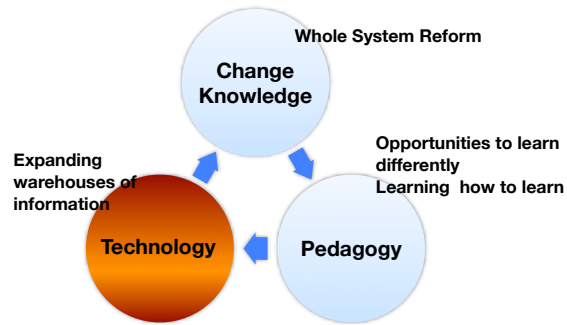
Pedagogical Precision

- Treating students as learning partners.
- Employing students' own tools for learning.
- Use more peer to peer teaching.
- Offering students far more choices rather than mandates.

Marc Prensky

33

Stratosphere Defined



34

Technology

It is time to define
the learning game as **racing
with technology.**



35

What Does Technology Want?

Increasing:

- Efficiency • Opportunity • Emergence • Complexity •
- Diversity • Specialization • Ubiquity • Freedom •
- Mutualism • Beauty • Sentience • Structure
- Evolvability

36

The Dark Side of Technology

*The Net Delusion:
The Dark Side of Internet Freedom*
(Evgeny Morozov)

The Filter Bubble
(Eli Pariser)

*The Shallows:
What the Internet is Doing to our Brains*
(Nicholas Carr)

37

Darkside

- Cyber-utopianism: the naive belief in the emancipatory nature of online communication that rests on the stubborn refusal to acknowledge its downside
Evgeny Morozov, (2011)
- If you live in a poor neighborhood you are far more likely to see an ad for a trade school than a college or university

38

38

Current State of Technology in Schools

Integrating Technology with Student-Centered Learning Report

- 8% of teachers fully integrate technology into the classrooms.
- 43% of students feel unprepared to use technology.
- 23% of teachers feel they could integrate technology.
- The organizational support for use of technology in schools is underdeveloped.

Babette Moeller and Tim Reitzes

39

Technology and Pedagogy

Sound instructional design, skilled teaching, and quality implementation will be required.

Most of all, partnership between teachers and students will be essential. pg. 39

40

Technology and Pedagogy

As long as digital immersion and schooling function in isolation, and are not steeped in real-life problem solving, we will not see any progress.

Sophisticated goals require sophisticated technology. Fortunately the dreams are becoming more vivid. pg. 40

41

Innovative Teaching Practices/ITL

- Student centered pedagogy
- Extending learning beyond the classroom
- Information and Communication Technology

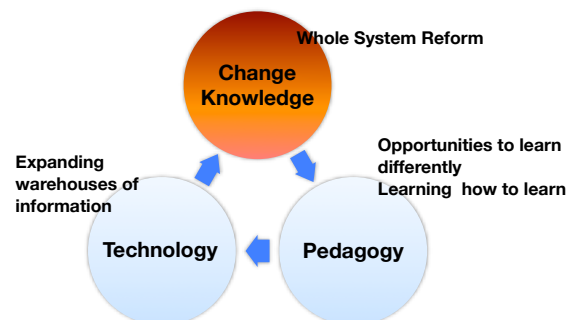
42

Innovative Teaching Practices Occurred When:

1. Teachers collaborated, linking instruction to 21st learning skills.
2. Teachers engaged in professional development that involved active and direct engagement such as action research or practicing new methods in the classroom.
3. School leadership supported innovative instruction and technology.
4. System provided focus and support.

43

Stratosphere Defined



44

The Challenge of Change



45

Change Knowledge

1. Focus
2. Innovation
3. Empathy
4. Capacity Building
5. Contagion
6. Transparency
7. Elimination of non-essentials
8. Leadership



46

Change Knowledge

Change will become more enjoyable when it proffers experiences that are **engaging, precise and specific: higher order** and **collaborative** for individual and collective good. pg. 3

47

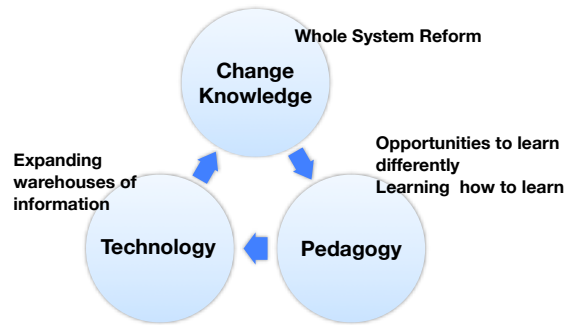
Change Knowledge

- Developing the capacity for individuals, groups and systems to generate and implement quality solutions that affect student achievement on a very large (Whole System Reform) basis.

48

48

Stratosphere Defined



49

Taking Action: Whole System Reform

The solution lies in the concentration of the three forces of **pedagogy, technology** and **change knowledge**.

- Make it all about learning.
- Let technology permeate.
- Engage the whole system.

50

Disruptive Innovations



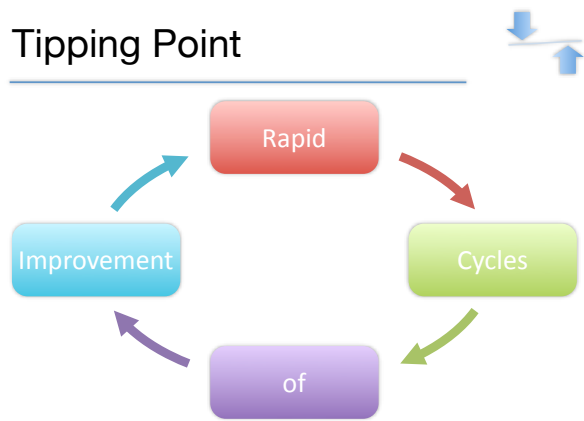
"We are at the beginning of a **powerful disruptive innovation** which will grow in leaps and bounds.

We must take a **learning approach**.

The new journey will be bumpy. But less bumpy than what we are going through now. And it will be relatively easy with **bursts of progress**."

51

Tipping Point



52

Why will it be easy?

1. The old technology of tell and test does not work.
2. Examples of the new pedagogy partnering with students re rapidly under development
3. There will be great appetite for new ways
4. People will like doing what they like and many will be helping.

53

Its time to
take the lid off
learning



54